

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-20. (canceled)

21. (currently amended) Irradiation device, comprising
a gantry;

said gantry comprising an inner gantry part and an
outer gantry part;

a radiation head, mechanically supported by said inner
gantry part and rotatable around a rotation axis;

said radiation head being arranged to direct radiation
to a treatment volume situated substantially on said rotation
axis;

wherein all movable parts of said gantry are, in all
situations, situated at a distance from said rotation axis larger
than a predetermined value;

said inner gantry part being rotatably supported by
said outer gantry part at two support locations, situated on
opposite sides of said treatment volume in a direction parallel
to said axis;

said outer gantry part being stationary with respect to
said treatment volume;

said radiation head being movable relative said outer gantry along at least one arc of a circle substantially centered at said treatment volume;

said arc being non-parallel with said rotation of said radiation head around said rotation axis, whereby non-coplanar irradiation treatment is achievable.

22. (previously presented) Irradiation device according to claim 21, wherein said gantry (1-2) is arranged substantially radially with respect to said treatment volume (12), as defined by said rotation axis (9).

23. (previously presented) Irradiation device according to claim 21, wherein said radiation head (8) is continuously rotatable around said rotation axis (9).

24. (canceled)

25. (canceled)

26. (previously presented) Irradiation device according to claim 21, wherein said inner gantry part (1) comprises a first ring portion (4) and a second ring portion (5) separated in the direction of the rotation axis (9), said ring portions (4, 5) being carried in a first support portion (6) and a second support portion (7) of said outer gantry part (2), respectively.

27. (previously presented) Irradiation device according to claim 26, wherein at least one of the pairs of said ring portions (4, 5) and said support portions (6, 7) comprises electrical connections with sliding contacts.

radiation head [(8)] is movably supported for motions along said linear beam portion;

said linear beam portion mechanically connecting said two support locations; and

said linear beam portion being substantially parallel to said rotation axis.

30. (previously presented) Irradiation device according to claim 29, wherein said radiation head (8) is tiltably supported by said linear beam portion (17), said radiation head (8) directing its radiation towards said treatment volume (12) from any position relative to said linear beam portion (17).

31. (previously presented) Irradiation device according to claim 21, further comprising means for numerical control of movable parts in said irradiation device.

32. (previously presented) Irradiation device according to claim 21, wherein said irradiation device further comprises a body-supporting couch (10), comprising two couch support portions (20, 21), situated on each side of said treatment volume (12), in the direction of said rotation axis (9).

33. (previously presented) Irradiation device according to claim 32, wherein said body-supporting couch (10) is formed in two rigid parts (22, 23), each one attached to a respective one of said couch support portions (20, 21), said rigid parts (22, 23) being interconnected by material (24) with a low radiation cross section.

34. (previously presented) Irradiation device according to claim 33, wherein said couch support portions (20, 21) are movable independently of each other.

35. (previously presented) Irradiation device according to claim 34, wherein said couch support portions (20, 21) are movable in two translational directions, substantially perpendicular to said rotation axis (9).

36. (previously presented) Irradiation device according to claim 32, wherein said body-supporting couch (10) is arranged within a distance of said predetermined value from said rotation axis (9).

37. (previously presented) Irradiation device according to claim 21, further comprising a body-supporting couch (10) that is elongated in the direction of said axis (9).

38. (previously presented) Irradiation device according to claim 37, wherein said body-supporting couch (10) is disposed below said axis (9).

39. (previously presented) Irradiation device according to claim 37, wherein said elongated body-supporting couch (10) has a lengthwise extent disposed parallel to said axis (9).